

**UTAH RENEWABLE ENERGY INITIATIVE FOCUS  
GROUP**

**DRAFT REPORT  
SEPTEMBER 17, 2007**

**FOR SUBMISSION TO THE  
GOVERNOR’S BLUE RIBBON ADVISORY  
COUNCIL ON CLIMATE CHANGE**

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## **EXECUTIVE SUMMARY & RECOMMENDATIONS**

(to be supplied)

## **REI FOCUS GROUP DESCRIPTION**

### **The Renewable Energy Initiative (REI) Focus Group Purpose**

The Renewable Energy Initiative (REI) Focus Group was organized in late June 2007, to develop detailed public policy actions that can be taken by state government and other leaders to increase the development of cost effective renewable electrical energy resources.

### **REI Focus Group Membership**

The group consisted of representatives from a wide range of stakeholder groups, including state environmental, energy, and regulatory agencies; public and investor owned utilities; environmental organizations; renewable energy developers; financial and legal firms; academic organizations; and other interested parties. Meetings were open to the public, so attendance varied from meeting to meeting. See Appendix 1 for a list of participants, based on signed attendance lists from the various REI group meetings.

### **REI Focus Group Work Schedule and Study Scope**

The group first met on July 9, 2007, and was tasked to submit its report to the Governor's Blue Ribbon Advisory Committee on Climate Change (BRAC) before October 10, 2007. Due to the time constraints, the group met every week during the period of July 9 – October 3, 2007, and confined its discussion to the area of renewable electricity generation resources. Additionally, the group mainly focused on ways to encourage development of those resources that would be large enough to help the state's electric suppliers meet the growing needs of their customers. The group chose this area because of the significant CO<sub>2</sub> emissions that result from the burning of coal and natural gas to generate Utah's electrical energy. If desired, one or more additional work groups could be convened at a later date to consider renewable energy resources for other sectors such as transportation and residential/commercial/industrial end use applications.

### **REI Focus Group Work Plan**

The REI Focus Group utilized the following work plan:

- The group completed some exercises to identify high level economic, regulatory, and technology forces that encourage or discourage renewable resource development. From this work, the group identified reasons to develop renewable electrical energy resources, reasons why more renewable resources have not been developed, and an initial list of topics to consider.
- Presentations by subject matter experts and related discussions were then scheduled over the next four weeks to educate the group on the renewable energy

resource marketplace and technologies, various policy options, and related utility regulatory and cost recovery issues. See Appendix 2 for a list of the topics covered in this phase.

- Two subgroups were assigned to consider the definition of renewable energy resources and the definition of cost effectiveness. Summaries of the subgroup discussions are provided in Appendix 3.
- The group then developed an expanded list of state-level issues, programs and policies affecting renewable energy resource development.
- From the expanded list, three initiative areas were selected that the group felt that it should discuss in more depth and for which it should develop recommendations to be forwarded to the BRAC for consideration in advance of the 2008 legislative session. They included:
  - Renewable portfolio standard (RPS) design considerations and whether there is a need for a Utah RPS
  - Discussion of various credits and incentives that could encourage renewable resource development
  - Actions that could encourage the transmission and distribution system to be strengthened to support renewable resources
- REI Focus Group participants also were asked to submit additional ideas, comments, suggestions and supporting information for consideration. Input that was received was either incorporated into the group findings and recommendations or is provided in Appendix 4.
- This written report was prepared for submission to the BRAC.

## **REI FOCUS GROUP RESULTS**

The following paragraphs summarize the results of the REI Focus Group discussions.

### **Reasons to Develop Renewable Electrical Energy Resources**

The following reasons were identified for developing more renewable electrical energy resources to supply Utah's electrical energy needs:

- Diversify Utah's electric generation resource portfolio, which is currently fueled primarily by coal and natural gas. Diversification could mitigate the impact of future increases and volatility of fossil fuel prices, and improve energy independence and security.
- Improve air quality by avoiding some future fossil-fired power plant emissions.
- Reduce or avoid generating additional CO<sub>2</sub> emissions, a major greenhouse gas contributing to climate change; and
- Encourage rural economic development, including the direct economic benefits associated with development of a new renewables projects in rural communities, as well as the direct benefit to the renewables energy industry, and the indirect benefits associated with Utah having a high quality environment, stable electric prices, and plentiful electric resources.

### **Why Haven't More Renewable Resources Been Developed?**

The REI Focus Group identified the following factors that have slowed the development of large amounts of renewable electrical energy resources:

- When renewable resources are analyzed using traditional electric utility cost analysis methods, they often are evaluated as being higher cost and/or higher risk than other generation technologies. This is due to their relatively low economies of scale, high capital cost, the low generating capacity factors of some renewable technologies, increased development risks of geothermal field exploration, and technological/market maturity of some technologies. Proponents of renewable resources argue that renewables actually would be cost competitive if all of the costs of fossil fueled generation were recognized by the state and valued within utility commission regulations. Examples include attributing costs to electricity customers derived from the adverse effects of emitting greenhouse gases, air pollution, mining and drilling, etc. However, not all parties agree that such costs should be considered in setting utility rates. Such costs, sometimes called environmental externalities, are often difficult to quantify, and consistent methods to include or consider these costs in utility rates have either not been developed or have seen limited use during utility planning and resource procurement.
- Geographic regions that hold the highest potential for renewable resource development often are located many miles from major population centers, and frequently are not located near transmission lines that could carry the renewable power to markets. Transmission lines and associated electrical infrastructure are

- costly to build and usually take many years to design, obtain rights of way and permits, and construct.
- Some renewable resources cannot be dispatched or scheduled to meet the system's demand for power, but instead must be backed up by other generators when not available. Referred to as "intermittent resources", examples include wind and solar technologies. This means that additional fossil fired generators or other infrastructure must be developed to ensure that the utility can meet customer demands when the renewable resources are not available, and that system frequency, voltage, and grid reliability standards are met.

### **State Policies and Programs Affecting Renewable Energy Resource Development**

The REI Focus Group identified the following economic and regulatory conditions, policies or programs which influence how much renewable electrical energy resources will be developed:

- Whether a (public or investor owned electric) utility can achieve full and timely recovery of renewable energy resource and related infrastructure costs without creating unacceptable price increases to its customers.
- How much additional or replacement generation resources a utility needs to serve its customers, and the time frame in which new resources are needed.
- Whether conservation, load shaping, demand side management, or other measures are economically and operationally more attractive to a utility than adding new resources.
- Whether equipment availability and prices are such that utilities can acquire sufficient quantities of renewable resources (in the form of assets or market purchases) at reasonable cost in time to meet their obligations to serve customers.
- Whether a legislative mandate or other requirement exists in which an electric provider is committed to achieve a certain percentage of renewable electrical resources in its total delivered energy to its retail customers. This is often accomplished by a renewable portfolio standard (RPS), a broader clean energy portfolio standard, or through enforceable renewable resource commitments. included in a utility's integrated resource plan approved by state utility regulators.
- Whether a package of streamlined site study and selection processes, permitting, tax and other economic incentives exist that will facilitate the development of renewable energy projects in a specific location in an efficient and timely manner. This might be accomplished through the creation of renewable energy economic development zones, similar in concept to economic development zones that have been created to encourage commercial and industrial development in many Utah locations.
- Whether prices and metering policies exist that are attractive to independent renewable resource developers, including net metering to allow the energy output from renewable projects to be sold to the host utility
- The existence of public benefit charge funds, which are state-controlled funds generated by levying a small surcharge on consumer electricity usage. The fund is placed under control of a fund administrator who uses the money to support a

- range of end-use energy programs, which could include funding of renewable energy research and development projects and programs.
- The existence of green power purchasing and marketing programs, giving customers the choice of purchasing electricity from renewable sources or of paying into a fund that the utility will use develop renewable generation resources.
  - The removal of transmission and other infrastructure barriers that discourage the development of renewable electrical energy resources
  - The degree to which the transmission and distribution system is modernized and strengthened to support large or distributed renewable electrical resources. Technical considerations include transmission capacity, system control and stability issues, and ease of interconnection between suppliers and the transmission system.

## **DESIGN AND NEED FOR A UTAH RENEWABLE PORTFOLIO STANDARD**

As was reported in the Climate Change Stakeholder Working Group report to the BRAC, a renewable portfolio standard (RPS) is a requirement that utilities must supply a certain fixed percentage of electricity sold to the utility's customers from an eligible renewable energy source. Currently 23 states and the District of Columbia have adopted Renewable Portfolio Standards, with Illinois considering RPS legislation in their current legislative sessions.

The REI Focus Group decided it was necessary to study potential design features of an RPS before considering whether Utah should adopt an RPS. In order to use limited meeting time efficiently, the focus group asked Kyle Davis of PacifiCorp to present a case study of the Oregon RPS legislation and the process that was used in Oregon to develop their RPS. Mr. Davis also provided a set of 17 questions to address when considering an RPS, which were initially presented during testimony offered by Brent E. Gale, Sr. Vice President, Regulation and Legislation, MidAmerican Energy Holdings Company to the Utah Legislature's Public Utilities and Technology (PUT) Interim Committee on June 20, 2007. This approach helped the REI Focus Group to identify key design issues for possible inclusion in a Utah RPS, while also taking into consideration the important differences between Utah and Oregon's needs. See Appendix 5 for a list of the 17 questions and the Oregon RPS case study.

Staff from Rocky Mountain Power/PacifiCorp asked whether the goal of the group should be to establish a clean energy or low carbon portfolio standard, or if the goal should be to focus exclusively on renewables. They suggested such a goal would be more appropriate, especially since existing RPS states have now turned their focus to CO<sub>2</sub> reductions.



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During the RPS discussion, representatives of public power entities such as municipal power and electric co-ops advised the focus group that any mandatory Utah RPS applicable to them may present governance problems for them, especially related to any enforcement or oversight provisions. On the other hand, Rocky Mountain Power expressed concern that there should be equitable treatment of all electricity customers under an RPS, and that all of the population should share the cost of enacting the new state policy.

In general, the REI focus group concluded that any Utah RPS must be carefully designed, with the right balance of features, in order to be of value. While the REI focus group was able to identify the features that probably should be included, it was not possible to complete the balancing of the various features in the few weeks available to the group. In comparison, the development and balancing effort in Oregon took over a year of intense work by many stakeholders and policy makers. Even after the year of work, some decisions were decided by the Governor or during the political process in the legislature.

During the REI's RPS discussion, Utah Division of Air Quality staff prepared a "straw man" document that listed the various RPS design features from the Oregon model, which the REI focus group then used to guide its discussion. The following section describes the design features that were considered by the REI focus group and comments concerning the feature. Any quantitative targets listed in the following section are considered very preliminary or placeholders. The REI Focus Group concluded that specific final targets must be set after careful analysis and through the interaction of many stakeholders during the shaping of actual legislation. It is expected that Utah policy makers will establish a process to develop final RPS legislation, if Utah policy makers decide that an RPS is necessary.

### **Utah Division of Air Quality's RPS Design Features for Utah**

(modeled after the Oregon RPS)

#### **a) Preliminary Target:**

Investor Owned Utility (IOUs):	20% by 2020
Municipalities:	5-10% by 2020
Rural Electric Co-ops:	5-10% by 2020

Targets for Municipalities and Co-ops that currently have a surplus in energy will not be applicable unless new resources are acquired.

Annexing of IOU service territory by Municipalities or Co-ops without consent, will trigger full (IOU) RPS targets.

**Comments:** Representatives of public power entities have stated in the REI meetings that a Utah RPS applicable to them may present governance concerns,

especially related to any enforcement or oversight provisions. Legal research needs to be completed to determine if and why this is the case.

*[Note: Current status, as of 9/16/07. This paragraph will be updated to reflect any further target discussions in our remaining meetings:]* REI group participants did not arrive at a consensus renewables target during the first discussions of this topic. Instead of spending considerable time trying to arrive at a consensus, the focus group deferred discussion until other terms and conditions of an overall initiative were discussed. Utilities representatives objected to the goals as outlined and indicated that they could not commit until they had seen the remaining terms and conditions. On the other hand, other participants verbally stated that the targets were not ambitious enough. Target values must be set very carefully, with detailed analysis and system modeling of the Utah specific situation on a utility-by-utility basis, due to greatly varying resource addition forecasts for the various utilities, and the lack of reliable modeling results related to the stability of the western United States' electric grid under scenarios of greatly increased amounts of distributed and non-dispatch-able renewable resources. For example, Rocky Mountain Power is in the process of adding considerable new generation resources, and has committed to add wind and geothermal resources as part of the commitments that Mid American Energy Holdings Company made as part of its acquisition of PacifiCorp. On the other hand, some municipal and other public power entities do not expect to add generating resources for at least several years, and are small enough that it may be impossible for them to add renewables without also adding expensive gas-fired peaking generation that would operate when the renewables were not available. Renewable targets also must be selected in a manner that is consistent with Utah's eventual CO<sub>2</sub> reduction targets under the Western Climate Initiative. Additionally, targets and interim milestones should be established and approved at the final resource planning point for a given year, and consideration should be given to use of three or five year rolling averages for establishing actual compliance.

In addition to the above considerations, some participants strongly recommended that the selection of the renewables targets be established after the definition of qualifying renewables is finalized.

#### **b) Definitions of Renewable Energy Resource**

As a minimum, renewable energy resources should be defined in accordance with existing Utah statute, to include biomass energy; certain qualifying hydroelectric energy, geothermal energy, solar energy, and wind energy. In addition, any RPS legislation should allow for other resources to be defined as renewables by a state wide governing body such as the Public Service Commission or Division of Environmental Quality.

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Biomass energy means any of the following that is used as the primary source of energy to produce fuel or electricity:

- material from a plant or tree; or
- other organic matter that is available on a renewable basis, including:
  - slash and brush from forests and woodlands;
  - animal waste
  - methane produced at landfills or as a byproduct of the treatment of wastewater residuals;
- aquatic plants; and
- agricultural products.

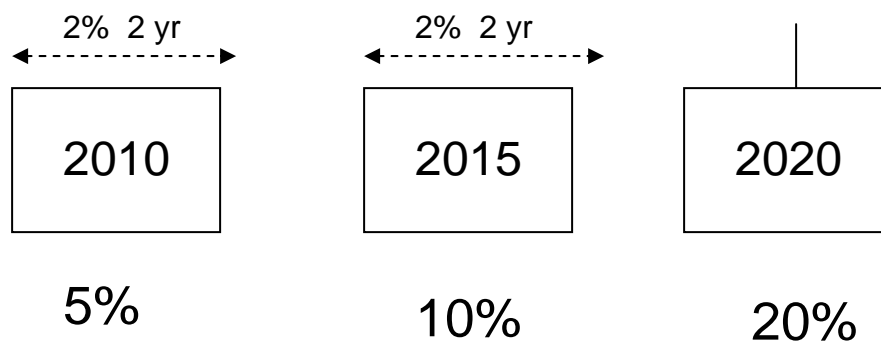
Biomass energy does not include

- black liquor
- treated woods; or
- biomass from municipal solid waste other than methane produced at landfills or as a byproduct of the treatment of wastewater residuals.

**Comments:** Some participants argued that the list of qualifying resources should be expanded to include other low-carbon emitting, and otherwise environmentally low-impact resources such as demand side management, improved plant efficiency, and other actions that avoid the use of non renewable resources such as fossil fuels. These types of resources could be just as effective in helping Utah achieve its CO<sub>2</sub> emission reduction and other targets as the resources that presently qualify as renewables. Some states have sought to tap this potential resource by setting a percentage target for energy efficiency or other measures as part of their RPS legislation or rule making.

#### c) **Compliance**

Beginning in calendar year 2010, investor owned utilities would be required to reach the following milestones:



There would be a 2% 2 yr window for 2010 and 2015 milestones to prevent artificial markets; however 2020 would be a hard target.

Municipalities and Co-ops do not have intermediate milestones.

Compliance will be met and verified on the basis of Renewable Energy Certificates.

**Comments:** Several participants indicated that it is very important to have flexibility in meeting the compliance targets, due to uncontrollable events such as weather, equipment availability, natural disasters, market conditions, or utility system loads. Targets and interim milestones should be established and approved during the final resource planning process for a given year, and consideration should be given to use of three or five year rolling averages to verify actual compliance.

**d) Renewable Energy Certificates**

In order to demonstrate compliance with the RPS requirements, an electric utility must provide proof of having obtained or produced the qualifying electricity and having delivered it to its customers. This proof is accomplished through the creation of a market tracking mechanism that follows the creation, market transactions, and eventual retirement of renewable energy units using Renewable Energy Certificates (RECs). RECs serve much the same functions as commodity futures contracts that are bought and sold between parties without the underlying actual quantities of the commodity being physically moved between buyer and seller until the final delivery. Bundled RECs are RECs that are always bought or sold along with the energy itself that has been produced by a renewable generation resource, from the point of creation to the point of final consumption. Unbundled RECs are RECs that have been administratively separated from and bought and sold independently of the actual energy. Electric utilities are allowed to use both bundled and unbundled RECs within the Western Electricity Coordinating Council (WECC).

If a utility purchases a bundled REC, the electrical energy associated that bundled REC must also be delivered to the utility. But in the case of an unbundled REC, the actual electric energy from a renewable resource can be “swapped out” for non-qualifying electricity (e.g., from natural gas or coal) as it makes its way to the final destination, with the utility’s total purchased and retired RECs demonstrating that the right amount of renewable energy was produced to meet the utility’s RPS requirement. By allowing for the use of unbundled RECs, utilities can gain the flexibility of using non-qualifying electricity to “shape” or “firm” wind power and other intermittent power resources, as long as the total amount of RECs that are purchased and retired by the utility equal the renewable energy percentage of total electrical energy sales specified by the RPS.

For IOU’s, the Oregon RPS requires that no more than 20 percent of their compliance in a given year may be met through the use of unbundled RECs. For the Municipalities and Co-ops, no more than 50 percent of their compliance in a given year may be met through the use of unbundled RECs.

**e) Issuance of Certificates**

A statewide governing body will issue RECs and the tracking will be done by WREGIS.

**Comments:** Some participants asked if a statewide governing body should oversee the certification of RECs using standards and tracking provided by WREGIS.

**f) Existing Facilities**

An existing facility is defined as those that became operational before January 1, 1995.

**Comments:** This issue needs to be addressed as targets are developed.

**g) Renewable Energy Certificate Trading**

Electric utilities can use both bundled and unbundled RECs within the Western Electricity Coordinating Council (WECC). RECs may only be used once and only by the owner of the REC.

**Comments:** It is important to establish a system that will ensure against double counting. At the same time, depending on the nature and timing of targets, there may be opportunities to sell RECs to help provide cost effective development of renewable energy resources.

Targets would only apply to kilowatt-hours sold within Utah.

The group discussed the incentives that could be created for in-state renewable energy development if utilities were allowed to use unlimited amounts of RECS produced by in-state projects, with some restrictions placed on amounts of out-of-state RECS. But some participants argued that the narrower the geographic restrictions placed on utility procurement practices, the more expensive the projects will tend to be, and the more cost will be passed on to the consumer.

**h) Recovery of Costs**

All prudently incurred costs associated with complying with the RPS are recoverable.

**Comments:** It is important to ensure that the rate setting process results in all elements of cost being balanced, and that costs and revenues are matched. PacifiCorp has already seen opposition and push-back on the costs it has incurred in its renewable resource development efforts. Part of the problem is that renewable energy resources are generally capital intensive in the early years of a project's useful life, and utilities must get revenue to recover the all-in costs of projects to match those costs in the years they are incurred. Cash flow is critical. Also, it should be noted that the tax credits that can make renewable resources more attractive in the marketplace cannot be used by electrical co-ops or municipal power entities.

**i) Cost Caps**

Utilities are not required to comply with the RPS to the extent that the sum of the incremental costs of compliance with the RPS, the costs of the unbundled RECs, and the alternative compliance payments made exceed four percent of a utility's annual revenue requirement in a compliance year. RPS compliance costs are not included in the annual revenue requirement to prevent a compounding effect.

**Comments:** The REI focus group discussed a few different ways of establishing a cost cap, such as a per-meter cost cap rather than a certain percentage of a utility's annual revenue requirement.

In further discussion, utility representatives emphasized that a cost cap should be applied during the annual resource operational planning stage, not used to penalize the utility after the actual results were reported. This is because unusual weather, equipment problems, or other natural disasters may alter the most prudently made plans. On the other hand, utility representatives also explained that the 4% cost cap would not necessarily restrict a utility from getting cost recovery for prudent projects; if the utility decided that projects should be pursued above the 4% cap, they would be required to explain why they were prudent to the public service commission or other oversight body.

**j) Alternative Compliance Payments**

In lieu of procuring renewable energy resources, utilities can pay an Alternative Compliance Payment (ACP), to be placed in a fund that can only be used for acquiring renewable energy resources in the future, or for energy efficiency and conservation programs. Rates for each utility will be established on a per megawatt-hour (MWH) basis by the Utah Public Service Commission (PSC). This mechanism sets an effective cap on the cost of complying with the RPS.

**Comments:** A state agency would calculate the ACP value in dollars per megawatt-hour, not the utility. The ACP mechanism helps to ensure that price gouging does not occur during negotiations between developers or sellers and buyers. In the event that renewable project prices rise above the ACP value, the utility would be allowed to defer investments until the market corrected itself.

**k) Green Power Programs for All Utilities**

Every utility in Utah must offer their customers the option of voluntarily purchasing renewable energy. These purchases will not count toward an RPS.

**Comments:** The green power programs allow customers to purchase renewable energy above and beyond the RPS compliance level. After some discussion, the group concluded that green power programs might be better addressed through rule making.

**l) Miscellaneous**

By Oct 1, 2008, the state must establish an automatic adjustment clause method that allows timely recovery of costs prudently incurred by an electric company to construct or otherwise acquire facilities that generate electricity from renewable energy sources and for associated electricity transmission.

The RPS shall allow utilities to recover in the rates of all but the largest customers the costs of conservation measures.

Utilities and Independent Generators must submit annual compliance reports to the PSC or governing state-wide body.

**Comments:** The miscellaneous issues listed in this section should possibly be addressed in the regulatory arena rather than in legislation. However, some participants expressed a preference for the issues to at least be addressed at some level within legislation, thus providing specific guidance to regulators. Research needs to be done on how plants such as Bonanza and Intermountain Power Project should be addressed, where significant amounts of power produced by those plants are delivered to customers outside Utah.

Rocky Mountain Power committed to provide a better description of what they hope to see developed regarding regulatory issues.

## **CREDITS AND INCENTIVES**

The REI focus group discussed various tax credits and incentives on during their September 5, 2007 meeting. As the discussion progressed, it became apparent that a wide variety of different incentives or credit schemes can be implemented that would encourage the development of renewable energy resources, but that policy makers must first decide how much total money should be committed from Federal or state budgets. Once the total amounts to be made available are determined, specific tax credit and incentive programs can be designed within the budget in ways that will most effectively encourage renewable resource development.

The focus group also agreed that incentives or credits should be implemented for a continuous period of time that will be consistent with the planning horizon and implementation schedule of the renewable resources that must be built to comply with any RPS targets.



## **TRANSMISSION AND DISTRIBUTION SYSTEM ACTIONS**

In order to help the REI Focus Group to understand transmission and distribution system issues, Mr. Jim Tarpey of Holland and Hart gave a presentation on the Wyoming State Infrastructure Authority (WIA). See Appendix 7 for a summary of Mr. Tarpey's presentation.

Following Mr. Tarpey's presentation, the REI group discussed the following possible actions to help spur the development of transmission to serve renewable energy resource.

### **Establish a Utah infrastructure authority**

When asked about how Utah might consider setting up an infrastructure authority, Jim suggested broad authority, a high level board appointed by the Governor, with a clear mission about whether the state is planning to be an import or and export state, the role of renewable energy resources, and whether the authority should be a state instrumentality with the associated separation from state government (which gives leverage and avoids the authority being seen as just another state agency).

### **Create Renewable Energy Development Zones.**

The group discussed how to move from the tradition system of transmission planning to other schemes that could help smaller renewable projects to obtain transmission service. Several members of the REI focus group suggested that the existence of REDZs could be very helpful in helping utilities and other entities to plan and construct transmission lines, as well as simplify permitting and other issues related to development of the renewable resources themselves. Tim Wagner suggested that a full REDZ study committee should be recommended to Governor Huntsman. Carol Hunter suggested that one place to start would be to study the economic development statutes to learn what could be applied in establishing REDZs.

In order to begin any renewable energy generation project, land leasing and permitting is required. All renewable technologies face permitting hurdles. While specific permitting hurdles vary by technology (i.e., wildlife impacts), multiple levels of jurisdiction (federal, state and local) and associated processes when leasing land for development, are both common problems. There is also a lack of established interagency coordination for leasing, environmental review (NEPA) and permitting. This barrier would be alleviated if state and federal agencies cooperated in a coordinated, streamlined and expedited NEPA environmental review and single, "master" environmental impact statement for each renewable resource zone as a whole. This would reduce the time and costs, as individual project proponents would not have to do independent review and

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environmental impact statements for each project proposed. Joint environmental documents should be created and consolidated state and federal permits within one year.

Kyle Davis suggested that the renewable energy development zone (REDZ) concept could be of great help in solving the transmission problem. California only recently has established a transmission coordination agency.

Inadequate transmission infrastructure and siting delays and complications are two significant barriers to all new renewable energy development in Utah. Both of these hurdles could be alleviated with the establishment of renewable energy development zones (REDZs) in Utah. The state should then establish streamlined, coordinated and expedited siting and transmission policies in REDZs. A REDZ is a geographic region that possesses a renewable resource<sup>1</sup> of significance. Colorado and Texas each passed laws in 2007 to spur in-state renewable development by requiring: 1) the designation of renewable resource zones, coupled with transmission development plans to access the energy in those zones, and 2) the build out of transmission to bring the electricity out from the renewable resource areas.

### **Remove or Reduce Current Transmission Development Hurdles**

Developing and delivering renewable electricity winds up being a “chicken and egg” issue because renewable development and transmission development are inextricably linked and interdependent on each other. One does not happen without the other, and yet financing and constructing one without the other is not quite possible without certain guarantees. The solution to this problem would be integrated transmission planning to REDZs as a part of a REDZ build-out plan. Constraints on new transmission development could be further alleviated if the state’s utilities renewables purchases and resultant project development occurred on a timetable coordinated with transmission development so that both could occur simultaneously.

### **Improve Transmission System Efficiency**

One participant suggested that consideration be given to improving transmission efficiency as a way to realize capacity for the use of renewable resources.

### **Allow Cost Recovery for Transmission Development & Scoping Costs**

It was also suggested that there must be assurance of cost recovery for the utility that will cover the development and initial scoping costs for transmission to serve renewable energy resources.

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<sup>1</sup> Meaning renewable fuels – wind, geothermal steam, solar radiation, and biomass fuels.

**California Renewable Energy Transmission Initiative**

Rocky Mountain Power/PacifiCorp briefly mentioned developments occurring in California. The California Energy Commission (CEC), the California Public Utilities Commission (CPUC), California Independent System Operator (CAISO) and load-serving entities began in 2007 an initiative called the California Renewable Energy Transmission Initiative (CRETI). The CRETI will build upon the work of the Tehachapi Collaborative Study Group, and identify and assess renewable resource zones in the state and develop coordinated, cost-effective resource development plans that could provide sufficient renewable electricity to California consumers by 2020 to meet AB 32 targets. The work of the CRETI will take place over two years in three phases.

- 1) Statewide identification and assessment of competitive renewable energy zones.
- 2) Identification of priority REDZs and creation of conceptual transmission plans for these zones.
- 3) Development of Plans of Service (POS) for highest priority REDZs. These POS will provide detailed plans for transmission and infrastructure upgrades necessary to develop these zones but will not select specific transmission routes.

**Develop a Smart Electrical Grid**

In responding to questions about how to provide incentives for distributed renewable generation, Rocky Mountain Power/PacifiCorp replied that smart grid technology is the most likely enabler, since they would have a difficult time competing with the economics of utility-scale renewables. The group then discussed various considerations related to the smart grid, including:

- The widespread deployment of low or no carbon distributed renewable generation resources, plug-in hybrid electric vehicles and end-use efficiency devices will require a “smart”, interactive grid and communication infrastructure.
- Today’s grid was designed to only transmit energy from source to the demand site and stands to benefit from the previous internet and computer boom and the current efforts in material sciences.
- A modernized grid would also improve operational security and allow increasing amounts of distributed renewable resources generated near load, which would reduce overall system losses and thus result in additional carbon savings.
- If plug-in hybrid electric vehicles become common place and solar distributed generation applications continue to increase, the energy grid must become more of a two-way operation where energy can be both delivered and received.

- Two-way flow of energy and data would also allow customers to respond to price signals to reduce usage at peak times, when the lowest efficiency fossil-fired units are operating.
- A range of technology exists today that can improve the grid such that reliability and efficiency is improved, and cleaner, distributed renewable energy resources are better integrated, including new smart meters, remote sensors, energy-management systems, better transmission lines, and advanced storage technologies that serve to optimize electricity generation, dissemination, and usage.

## **APPENDIX 1: REI FOCUS GROUP PARTICIPANT LIST**

The following individuals attended one or more of the REI Focus Group meetings. Meetings were open to the public, so attendance varied from meeting to meeting, and some individuals who were present might not have signed the attendance lists.

CoChair: Tim Wagner, Sierra Club

CoChair: Ernie Wessman, utilities consultant and Air Quality Board

Naomi Franklin, League of Women Voters

Marelynn Zipser, League of Women Voters

Carol Withrow

Hans Ehrbar

Jason Berry, State Energy Program

Phil Powlick, Stake Energy Program

Ron Daniels, State Energy Policy Coordinator

Cathryn Collis, SWCA

Patrick Clark, Staker Parsons

Des Barker, DBA, Inc.

Mike Peterson, Utah Rural Electric Association

Sarah Wright, Utah Clean Energy

Kathy VanDame, Wasatch Clean Air Coalition

Cheryl Murray, Committee of Consumer Services

David Curtis, EGI University of Utah

Alyson Brennan, VP Political Advocacy UWABC

Steven Aderholt, Sound Geothermal

Jamie Dalton, Division of Public Utilities

Artie Powell, Division of Public Utilities

Mark Thomas, MD Thomas Consulting

Kent Udell, University of Utah Mechanical Engineering

Ted Boyer, PSC

Jim Holtkamp, Holland and Hart

Renee Zollinger, Environmental Performance Group

Brad Stevens, Utah Solar/Green Power

Kyle L. Davis, PacifiCorp/Rocky Mountain Power

Carol Hunter, Rocky Mountain Power

Ann Ober, Salt Lake County

Dianne Nielson, Governor Huntsman's Energy Policy Advisor

Rick Sprott, Department of Environmental Quality

Cheryl Heying, Division of Air Quality

James Campbell, Division of Air Quality

Glade Sowards, Division of Air Quality

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Gary Bryner, BYU

Jordan Gates, Salt Lake City

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Ted Rampton, UAMPS

Christy White, RAAM Power

Sarah Baldwin, Utah Clean Energy

Keith Hill, Deseret Power

Steve Graham, UCRC

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Glade Sowards, Division of Air Quality

James Campbell, Division of Air Quality

Dianne Nielson, Governor's Energy Advisor

Rick Sprott, Division of Environmental Quality Executive Director

## **APPENDIX 2: LIST OF PRESENTATION AND DISCUSSION TOPICS**

In order to develop a shared understanding of renewable resources and the issues affecting their development, the REI group met several times in July and early August to hear presentations and discuss aspects of the following topics:

- The options identified by the Climate Change Stakeholder Working Group's Energy Supply Sector subgroup
- Utah's renewable energy landscape, presented by Philip Powlick of the State Energy program
- An overview of Renewable Portfolio standards, including an introduction to state experience and possible cost impacts, prepared for the CCSWG by Ryan Wiser of the Lawrence Berkeley National Labs
- Comparisons of Congressional global warming bills, prepared by Amy Royden-Bloom, National Association of Clean Air Agencies
- A discussion of the nature of an electrical "smart grid," presented by James Campbell of UDAQ staff
- Review of renewable initiatives in various western states, presented by James Campbell
- Presentation on utility avoided costs, presented by Becky Wilson of the Utah PSC staff
- Presentation on barriers to solar energy development, presented by Sarah Wright of Utah Clean Energy
- Presentation of geothermal project development hurdles, by Richard Goff of PacifiCorp
- A case study of the Oregon Renewable Portfolio Standard and other supporting legislation, presented by Kyle Davis of PacifiCorp
- Discussion of questions to address when considering a renewable portfolio standard, presented by Kyle Davis of PacifiCorp

All of the above presentation handouts and other written materials will be available until \_\_\_\_\_ on the REI Focus Group web site at <http://www.deq.utah.gov/Issues/REIFG/index.htm>, or available by contacting the Director of the Utah Division of Air Quality.

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## **APPENDIX 3 – SUBGROUP DISCUSSION SUMMARIES**

### **Definition of Renewables Subgroup**

### **Cost Effectiveness Subgroup**

A subgroup was formed to discuss the meaning of “cost effective” as it should be applied to the development of renewable energy resources. Utilities generally must show, either to the Utah Public Service Commission in the case of investor owned utilities, or to various government entities or boards in the case of public power agencies, that investments are prudent and have been made in the best interest of the utility’s customers. Mr. Artie Powell of the Utah Division of Utilities presented some information on Least Cost/Least Risk on August 15, 2007. His presentation is reproduced on the following pages of this appendix.

[insert Artie Powell’s presentation, or summarize the information he provided]



## **APPENDIX 4 – STAKEHOLDER AND PUBLIC COMMENTS AND INPUT TO THE REI FOCUS GROUP**

### **1. REI Policy Recommendations Submitted by Sarah Wright, Utah Clean Energy:**

#### **Renewable Energy Policy Options for consideration by the Utah REI**

- 1) **Renewable Energy Standard** – sometimes referred to as Renewable Portfolio Standard.
  - Could include multiplier or other mechanism to promote Utah Projects as part of the renewables developed under the standard.
  - Could include solar set-aside to drive solar PV and concentrating solar resources that provide peak power
  - Could support energy storage technologies – such as compressed air or other emerging technologies
  - Could include both an energy and capacity requirement which would help drive a diverse mix of renewables, including base-load renewables such as geothermal and energy storage
  
- 2) **Renewable Energy Development Fund** (I can pull together more information about this option) A Renewable Energy Development Fund is a policy measure designed to advance clean and renewable energy resources by providing sustainable funding mechanisms that accelerate the development of new clean energy technologies.
  - Could be funded through a systems benefit charge (similar to the energy efficiency tariff rider that RMP already has in place to their Demand Side Management programs
  - This is a good complimentary policy to a Renewable Energy Standard. A number of states implement both a Renewable Energy Development Fund and a Renewable Energy Standard
  
- 3) **Transmission Authority with Renewable Requirements** - In 2007, both Colorado and New Mexico passed Transmission bills with renewable energy requirements.
  - Colorado Transmission legislation -  
[http://www.leg.state.co.us/clics/clics2007a/csl.nsf/fsbillcont3/4B1B8C4BA39953A287257251007D6838?open&file=100\\_enr.pdf](http://www.leg.state.co.us/clics/clics2007a/csl.nsf/fsbillcont3/4B1B8C4BA39953A287257251007D6838?open&file=100_enr.pdf)
  - New Mexico Transmission Legislation -  
<http://legis.state.nm.us/Sessions/07%20Regular/final/HB0188.pdf>

4) **Net Metering**

Utah's current net metering bill could be modified to facilitate more distributed renewable energy and streamline the net metering process for customers. The following changes to the current bill should be considered:

- Increase the per-system kW cap (currently set at 25 kW) – Some states have recently increased their per-system net metering caps, such as Oregon (2 MW) and New Mexico (80 MW).
- Modify the true-up period so that customers can roll-over their kWhs to the next month rather than being paid at the avoided costs.
- Model net metering rules can be found online at [www.irecusa.org](http://www.irecusa.org).

The Utah Division of Public Utilities recently released a report on Net Metering with recommendations to further examine Utah's net metering statute:

<http://www.psc.state.ut.us/misc/06docs/0699903/NetMeteringReport.pdf>

## **APPENDIX 5 – 17 QUESTIONS TO ADDRESS WHEN CONSIDERING AN RPS**

Utah Renewable Energy Initiative August 2, 2007

Kyle L. Davis, PacifiCorp / Rocky Mountain Power  
(503-813-6601) or [kyle.l.davis@pacificorp.com](mailto:kyle.l.davis@pacificorp.com)

*Excerpts from testimony offered by Brent E. Gale, Sr. Vice President, Regulation and Legislation,  
MidAmerican Energy Holdings Company to the Utah Legislature's Public Utilities and Technology (PUT)  
Interim Committee on June 20, 2007*

### **Questions to address when considering a Renewable Portfolio Standard (RPS):**

1. What is the purpose that the state wants to accomplish?
2. Is a mandate necessary or is it sufficient to set targets and remove statutory and regulatory impediments?
3. If a mandate is imposed, will it be reconciled with state standards regarding cost effectiveness?
4. How will consumers' interests be protected?
5. How should benefits and costs be passed on to customers and through what mechanism?
6. Will RPS targets be based on nameplate capacity or retail sales?
7. What ultimate percentage of renewable energy should be achieved by what date, and what, if any, interim benchmark goals should be established?
8. Should the details be developed in legislation or delegated to a regulatory agency?
9. Which resources qualify as "renewable energy" and what limitations, if any, will be placed on the use of these resources for compliance?
10. Through what means can an electric utility comply with an RPS; e.g., ownership of renewable generation, purchase of renewable energy, purchase of renewable energy credits (RECs), alternative compliance payments (ACPs), penalties in lieu of compliance?
11. What restrictions would be placed on an electric provider's ability to use RECs to comply with an RPS?
12. With regard to facility vintage, which generating facilities count toward compliance with the RPS?

13. With regard to geographic eligibility, will limitations be established for use of qualifying generation and RECs for compliance?
14. Would the same RPS requirements apply equally to all retail electric providers, or would requirements vary based on a provider's market share?
15. Under what circumstances will a utility be granted an exemption from compliance with RPS requirements?
16. Should there be penalties for an electric provider's failure to comply with RPS?
17. What considerations should be given to the establishment of a State RPS to provide for maximum compatibility with a prospective Federal RPS?

**Specific RPS Design Elements that Will Affect Compliance Costs:**

- Percentage targets and timeframes
- Resource eligibility
- Geographic eligibility and delivery requirements
- Set asides for solar or other resource types
- Flexible compliance mechanisms (RECs, banking, borrowing, settlement periods)
- Encouragement for long-term contracting

**Resource/Project “Cost Effectiveness” Cost Cap Mechanisms in Use in Other RPS States:**

- **Codification of Risk-Adjusted, Least-Cost Standard**
  - Oregon
- **Bundled Contract Price Caps**
  - New Mexico, Hawaii, Montana
- **Alternative Compliance Payments** (*freely available*)
  - Massachusetts, New Jersey, Rhode Island
- **Alternative Compliance Payments** (*available/recoverable in rates if least cost measure and/or insufficient available renewable energy*)
  - Delaware, District of Columbia, Maryland, Oregon

**Overall RPS Program Compliance Cost Cap Mechanisms in Use in Other RPS States**

- **Retail Rate/Revenue Cost Cap**
  - Colorado, New Mexico, Oregon, Washington
- **Financial Penalty** (*for competitive suppliers, will act as cost cap*)
  - Connecticut, Texas, Oregon, Pennsylvania
- **Customer-Class Bill Impact**
  - New Mexico, Maryland, Delaware, Maine
- **Renewable Energy Fund Limitation**
  - Arizona, California, New York
- **Force Majeure Clauses**

- Pennsylvania, Minnesota, Nevada, Maine, Oregon, etc.

## **OREGON RPS CASE STUDY**

The following pages contain the case study of the Oregon RPS and related legislation was presented to the REI Focus Group, and used by that group as an efficient way to understand and consider the various design features that could possibly be useful in a Utah RPS. The case study was prepared by Kyle Davis of PacifiCorp, part of Mid American Energy Holdings Company.

[insert the pdf version of the case study]

## **APPENDIX 6 – TAX CREDITS AND INCENTIVES**

The REI Focus Group reviewed the following tax credits and incentives that have been enacted at the Federal level, or used in one or more Western states:

### **Current Incentives for Renewable Electricity**

#### **Federal Incentives**

1. Renewable Energy Production Tax Credit: 1.9 cent/kWh tax credit for electricity generated by wind, solar, closed-loop biomass, and geothermal resources. Cannot be used with the Solar and Geothermal Business Tax Credit and sunsets December 31, 2008.
2. Solar and Geothermal Business Tax Credit: 10% for geothermal and 30% for solar for commercial or industrial facilities using solar or geothermal technologies.
3. Farm Bill Grant, Section 9006: For energy efficiency and renewable energy projects by agricultural producers and small businesses in rural areas – not historically utilized in Utah – only one previous award. applicant cost share may be a deterrent, capped at \$500,000.
4. Residential Solar and Fuel Cell Tax Credit: 30% up to \$2,000 for solar electric. Sunsets December 31, 2007.
5. Modified Accelerated Cost-Recovery System (MACRS): Businesses can recover investments in certain property through depreciation deductions.
6. Clean Renewable Energy Bonds (CREBs) [2007 awards have been made, but congress has not yet passed funding beyond this FY]: financing mechanism for public sector renewable energy projects 0% interest rate, the borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest.

#### **State Incentives - Utah**

1. Renewable Energy Systems Tax Credit: State tax credit for residential (25% up to \$2,000) and commercial (10% up to \$50,000 or PTC for wind, biomass and geothermal over 600kW of 0.35 cents/kWh during first 4 years for systems from 2007 forward) renewable energy systems. PTC cannot be used in conjunction with the investment credit.
2. Renewable Energy Sales and Use Tax Exemption: State sales tax exemptions for the purchase or lease of equipment used to generate electricity by a renewable energy production facility with generation capacity of 20kW or greater. Sunsets June 30, 2009.
3. Net Metering Program: requires all electric utilities and cooperatives (municipal utilities are excluded) to allow customers to connect renewable energy systems to the grid for their own use and to supply excess electricity to the electric grid. The utility will "net"

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the customer's electricity use and production over the monthly billing period, in essence, paying the customer retail price for the electricity they produce. If net metering results in excess customer-generated electricity over the billing period, the utility will credit the customer for the electricity at the avoided cost rate – i.e., the cost the utility would otherwise incur to generate power if it did not purchase electricity from another source. System size capped at 25 kW.

4. Solar Easements: Rights to sunlight access attached to property rights

**Other Incentives for Renewable Electricity (from neighboring and other states)**

Listed on [www.dsireusa.org](http://www.dsireusa.org)

1. \*Solar Rebate/Buydown Programs (examples of participating states: WY- 50% up to \$3,000, CO – many - Rebates for grid-tied PV systems are offered at \$2.00 per watt, up to \$6,000, AZ – many, OR – buydown – Res:\$2.00/W-DC to \$2.25/W-DC- \$10,000 cap, Com: \$1.50/W-DC to \$1/W DC- \$57,000-\$70,000 cap, FL - Res - \$20,000/ Com- \$100,000, very common idea often funded by a Public Benefit Fund: see #12)

*\*This is something that PacifiCorp is currently testing out, beginning this year, in a small pilot project of 107 kW/year at \$2/watt.*

2. Tax credit/deduction increases (examples of participating states: ID – deduction - 40% up to \$5,000/year, \$20,000 total, OR – credit -Very aggressive business energy tax credit –35% up to \$10,000,000 over 5 years, 50% for RE generating facilities, \$9,000 for single family homes – Residential credit caps at \$6,000)

3. Green Tag Purchase

Example: The Northwest Solar Cooperative (NWSC) offers to purchase the rights to the environmental attributes or “Green Tags” derived from grid-connected solar PV- or wind-generated electricity at a rate of \$0.05/kWh through December 31, 2009 (examples of participating states: ID, OR, NV- portfolio energy credit trading program)

4. Low or Zero Interest Loans (examples of participating states: ID - Res: \$15,000, Com: \$100,000, 4% interest, 5 years, generating projects not eligible, 0% interest for heat pump, OR - Small scale RE loans - Typically \$20,000 - \$20 million)

5. Grants (example of participating states: OR - RE grants: large scale, generating projects preferred, ID - RE grants: large scale, generating projects preferred)  
Solar for Schools (examples of participating states: OR, ID)

6. Bond program (examples of participating states: ID, NM - Projects financed with the bonds will be paid back to the bonding authority using the savings on energy bills, state government and school district buildings)

7. Property Tax Exemptions (examples of participating states: CO, AZ)

8. PV leasing Program for PV water pumps (example of participating state: TX)
9. Building Permit Fee Credit (Exemption) for Solar (example of participating state: AZ – up to \$1,000)
10. Mandatory Utility Green Power Option - All electric utilities are required to offer green power options to their customers (examples of participating states: CO, NM, MT, WA).
11. Permitting Standards
12. Public Benefit Funds/Trusts
13. Renewable Energy Zones –developed to instigate siting and construction of transmission to facilitate electric output from renewable energy technologies (example – TX – Competitive Renewable Energy Zones (CREZs)).



## **APPENDIX 7 – WYOMING INFRASTRUCTURE AUTHORITY**

The WIA is set up as a state instrumentality; in a way that the state is not pledging full faith and credit on bonds issued by the authority a necessary condition to address Wyoming constitutional issues. Even with that limitation, the WIA scope is very broad, with essentially cradle to grave authority to build and strengthen the transmission system, inside or outside the state. WIA can partner with the private sector, and has bonding capability up to \$1 billion on projects it doesn't own, and unlimited for projects owned by WIA.

The WIA has found that its most effective role is that of facilitator to help get the right players to the table, to serve as a catalyst/coordinator, advocate, or project sponsor. Much of its budget is used to fund feasibility studies that will help participants decide whether to build a transmission line. The WIA works with project partners to complete the studies. If the parties decide to proceed, the intent is to recover the Authority's costs so that the money can be re-used. Major partners would take the major lead going forward. Major projects facilitated by WCI include the Wyoming-Colorado Intertie Project, the Trans West Express, the Frontier Project, and the IGCC Pilot Project.

Some of the challenges that the WIA faces include the need to engage many different stakeholders with very different agendas; engineering challenges including technology, terminal locations, suitable corridors, and the impact on the rest of the grid; environmental and permitting issues; financing; the breadth and depth that should be included in the feasibility studies; equity financing during the development stage; and risk allocation and certainty of the revenue stream during the construction stage.

Public policy challenges include the use of a regional approach to transmission planning and development rather than individual states doing their transmission planning independent of other states or regional needs, the coordination of state and federal regulatory commissions, and coordinating for site approval processes.

Also, there are challenges concerning the application of open meetings laws and the Public Records Act, and the impact those requirements have on the willingness of participants to share confidential, proprietary or market-sensitive information.

The WIA is not required to comply with the Wyoming State procurement policy processes.